

DEVICE FOR DISPLAYING DVDs AND THE LIKE

RELATED APPLICATIONS: This application claims the benefit of U.S. Provisional Application No. 60/417,455 filed October 10, 2002, incorporated herein by reference.

BACKGROUND OF THE INVENTION

a. Field of Invention

This invention pertains to a device for displaying DVDs, CDs, VCR tapes and other content media. More particularly, the invention pertains to a cabinet-type display device that has one or more shelves rotatable between an open position in which access is allowed to the contents of the device and a closed position in which the contents of the cabinet are unaccessible.

b. Description of the Prior Art

Cabinet type display devices are well known in the art for simultaneously storing and exhibiting various articles, such as jewelry, food stuff, compact discs, books, etc. The shelves are mounted in a housing, or other similar support structure. In some instances, the devices are placed in a retail establishment near sales personnel and are constantly monitored. Hence, these display devices do not require any locks or other security protection.

In other instances, the display devices are placed in high traffic areas where at certain times no monitoring personnel is available. Therefore these display devices are provided with locks to prevent theft, pilferage and other unauthorized and removal of articles from the display devices. Some examples of display devices with locks are found in U.S. Patents Nos. 4,463,856; 4,850,658; and 5,797,487. However, the display devices used until now were unsightly, difficult to use or inconvenient.

SUMMARY OF THE INVENTION

Accordingly, there is a need for a convenient and practical display device that can be used to either display devices or store them safely in a protective housing.

Briefly, in accordance with this invention, a display case for storing and showing articles includes a housing, a case adapted to hold several articles, the case being mounted in said housing, and being rotatable between an open position in which the articles from the case are visible and accessible, and a closed position in which the articles are inside the housing and not accessible. A lock is also provided on the housing or the case and is adapted to prevent the case from moving when it is in the closed position. The lock may also be adapted to block the case from movement in the open position.

In one aspect of the invention, the case is mount to rotate about its vertical axis with respect to the housing.

A plurality of shelves are mounted on the case. The shelves may be arranged and constructed so that they can be removed therefrom if so desired. The shelves may be partitioned into two or more chambers sized to hold a stack of DVDs, CDs, or VCR tapes or other content media. The shelves may be made of a transparent plastic material so their contents are clearly visible.

Preferably, each case has a back wall which is visible from the outside when the case is closed. This back wall, as well, as the lateral walls of the housing are used for decorative displays and/or advertisement.

The movement of the case is limited to a predetermined angle of about 180°. This may be accomplished by providing a track in the housing bottom and a pin on the case riding in the track. The ends of the track form the movement limits.

The housing can have various shapes including triangular, square, rectangular and have two, three or four cases. Each case can have up to six shelves and each shelf can be divided into several chambers holding stacks of media arranged vertically. For each chamber a spring clip is provided. The clip is arranged to push the stack toward the front of the chamber so that if one media is removed, for example a DVD, it is automatically replaced by another one,

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1 shows a perspective view of one embodiment of a display device;

Fig. 2 shows a top view of the device of Fig. 1;

Fig. 3 shows a partial front elevational view of the device of Fig. 1;

Fig. 4 shows a side elevational view of the locking mechanism used for the device of Fig. 1;

Fig. 5 is a partial side elevational view of a case used in the device of Fig. 1;

Fig. 6 shows a partial sectional view of the case of Fig. 5;

Fig. 7 shows another partial elevational view showing the lower details of the device of Fig. 1;

Fig. 8 shows a top view of the case of Figs. 5 and 6;

Fig. 9 shows a partial sectional plan view of the case of Figs. 5 and 6;

Fig. 10 shows a partial elevational view of the device of Fig. 1 with the case in the open position;

Fig. 11 shows a view similar to Fig. 4 with the case in the closed position;

Fig. 12 shows a partial elevational view of the device of Fig. 1 with the case in the closed position;

Figs. 13 and 14 show a tray being removed from the case of Figs. 5 and 6;

Fig. 15 shows a top view of a first alternate embodiment of the invention;

Fig. 16 shows a top view of a second alternate embodiment of the invention;

Fig. 17 shows a top view of a third alternate embodiment of the invention;

Fig. 18 shows a top view of a fourth alternate embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the Figures, a display device 10 constructed in accordance with this invention consists of a housing 12 having a generally tubular shape with a base 14, several side panels 16, one or more top panels 18 and a top 20. The side and top panels 16, 18 may be decorated to present a pleasing esthetic aspect, or may be used for advertising. The housing may be made of sheet metal, plastic, wood or other similar materials.

The housing is formed with several cutouts 22. In the embodiment shown in Figs. 1 and 2 the housing is generally triangular and hence three such cutouts 22 are shown. Alternative embodiments with other configurations can also be used, as discussed in more detail below.

Each cutout 22 holds a case 24. The case 24 has a generally rectangular outline with two side walls 26, a top wall 28, a bottom wall 30 and a back wall 32 matching the shape and size of the cutout 22. The case 24 is used to hold DVDs, VCR tapes, and other content media. These articles are inserted and removed from the front of the case 24 and accordingly the front face of the case 24 is open. The case 24 may be made of sheet metal or any other similar material.

As best seen in Figs. 3 and 5, case 24 supports several shelves 36. These shelves may be made integral with the case 24, or, as shown in the Figures, may be inserted and removed from the case 24 as desired. For this purpose, the back wall 32 is made with several slots, including a set of wide slots 38 and a set of narrow slots 40 (best seen in Figs. 12, 13 and 14).

Each shelf 36 (see Figs. 3, 5, 13, 14) has two side walls 42, a back opening 44, a top wall 46, a bottom wall 48 and a front wall 50. Each shelf 36 is also formed with one or more intermediate walls 52, thereby forming several chambers. The depth of the shelf 36 is selected so that the shelf can hold several DVDs or VCR tapes. The width of the shelf 36 is selected to form two or more chambers. For example, in Figs. 1-12 a single intermediate wall 52 is used and the shelves 36 are wide enough to form two chambers, each holding two stacks of DVDs or VCR tapes side by side. The height of the shelf 36 is selected to be slightly taller than a VCR tape.

Preferably, the bottom wall 48 of the shelf 36 is formed with two parallel ribs 54. The distance between the ribs 54 is equal to the width of a typical VCR tape. The distance between the respective side wall 42 and the intermediate wall 52 is equal to or slightly larger than the width of a DVD disk. Therefore, within each chamber, several DVDs or VCR tapes can be positioned, with DVDs 56 resting on top of ribs 54 and the VCR tapes 58 being placed between the ribs 54, as seen for example in Fig. 6.

The front wall 48 is formed with arcuate cutout 60 to allow the DVDs or VCR tapes to be easily inserted into, and removed from the respective shelf

chambers. The side walls 36 are also formed with arcuate cutouts 62 for the same reason.

Each shelf 36 is formed with one or more top tabs 64 and one or more bottom tabs 66. These tabs are arranged and constructed to fit through slots 38 and 40 respectively. Accordingly, the shelves are installed on the back wall 32 by tilting them and then inserting the tabs 64, 66 through tabs 38, 40 respectively. Fig. 5 show a shelf 36 being installed and Figs. 13 and 14 show a shelf 36 being lifted and removed from the case 24. The shelves may be made of a transparent or translucent plastic material so that the DVDs and VCR tapes can be clearly seen from the front or the sides.

Preferably, the case 24 is also provided with a plurality of clips 70, one clip for each shelf chamber. The clips 70 are relatively flexible. Each clip 70 has two legs 72, 74 that fit in slots 76 formed in the back wall 32 (See Fig. 13). The clips 70 and slots 76 are arranged and constructed so that the clip has a major U-shaped portion extending into each shelf chamber (when the respective shelf is installed) at a predetermined angle. The clips 70 are arranged to urge the respective stack of DVDs or VCR tapes forward within the respective shelf chamber. Therefore, as a DVD or VCR tape is removed from a chamber, the next DVD or VCR tape is automatically moved forward to replace it. The DVD and VCR tapes also remain stacked in compact and in a neat configuration.

Preferably each case 24 is provided with top pin 80, and two bottom pins 82 and 84 (See Figs. 3, 7, 8, 9, 10, 12). A bracket 86 is mounted underneath top panel 18. The bracket may be made of sheet metal or other

similar materials and has a hole (not shown) for accommodating top pin 80. A bushing 81 is provided on pin 80 under bracket 86.

Base 14 is formed with hole 88 to accommodate bottom pin 82. The top and bottom pins 80, 82 are aligned to define a vertical axis with the case 24 being rotatable with respect to housing 12 about said axis. Preferably two disk-shaped plastic bushings 90, 92 are provided on pin 82. Bushing 92 is resting on base 14 and bushing 90 is disposed on top of bushing 90 and supports all or most of the weight of case 24 and provide the means that allow the rotation of the case 24 described above.

Preferably, the case 24 is rotatable only within a predetermined angular range. For this purpose, the base 14 may be formed with a substantially semicircular track 94. Bottom pin 84 rides in this track 94 as the case 24 is rotated. The ends of the track 94 define the limits of movements of the case 24 since the rotation of the case 24 in either direction brings the pin 84 in contact with one of these ends.

Preferably, the case 24 is rotatable from a fully open position, shown for example in Fig. 1, wherein said DVDs and VCR tapes are fully exposed and can be inserted and removed at will, to a fully closed position, illustrated in Fig. 12 wherein only the back wall 32 is visible and the DVDs and VCR tapes are inaccessible. Thus, the case 24 can be rotated by approximately 180°. A similar means for controlling the angular movement of the case 24 may be provided between the case 24 and the top of the housing 10. Alternatively, means of limiting the angular movement may be provided both at the top and at

the bottom, or may be omitted altogether. Moreover, if when the housing 10 is provided with several cases 24, each case 24 can be pivoted between the open and closed positions separately and independently of each other.

Preferably, the device 10 is provided with a locking means that blocks the case 24 either in both positions, or at least in the closed position. For example, a lock 100 may be provided in the bracket 86, facing forward so that it can be accessed easily. The bracket provided with a slot 102 and the top wall 26 of case 24 is provided with two slots 104 and 106. The lock 100 can be activated with a key (not shown). The lock 100 has a tongue 108 which in one position is oriented vertically as shown in Figs. 3 and 4. In this position, the tongue 108 passes through slots 102 and 104 and thereby immobilizes and blocks the case 24 in the open position. Thus, the case 24 is more stable and does not move while people look through its contents.

When an attendant wants to close the case 24, he inserts the key into the lock 100 and temporarily turns the tongue 98 to a generally horizontal position (Figs. 10, 11) thereby disengaging the tongue 108 from the slots 102, 104. With the tongue oriented in this position, the case 24 is free to rotate (within the limits set by track 94). The attendant now rotates the case 24 to the closed position. In this position, slot 106 is aligned under the slot 102. Now, when the lock is closed causing the tongue 108 to rotate downward until it passes through slots 102 and 106 (as shown in Fig. 12) and blocks the case 24 in the closed position. In this position, the contents of the shelves are not accessible and hence the display device needs no monitoring.

While in Fig. 2 the display device 10 is shown in a generally triangular configuration housing with three cases 24, each having five shelves and two chambers for each shelf, the device may be made in other configurations as well. For example, Fig. 15 shows an alternate embodiment wherein the housing is generally square and each shelf has four chambers. Fig. 16 shows another embodiment in which the housing is rectangular but relatively narrow with only two cases. The shelves on each case are divided into four chambers.

Fig. 17 shows a rectangular housing with four cases, two with six chambers and two with four chambers, as shown.

Fig. 18 shows a generally square or rectangular housing with four cases and six chambers formed on each shelf.

The shelves described above are particularly suited for DVDs and VCR tapes in sleeve type packaging because they have the same heights. Other types of packaging are also used. For example, a somewhat larger package for VCR tapes is available that is known as a clam shell package. For this type of package a slightly larger shelf can be made, which can be installed on the same case as the shelves described herein. Thus, several types of different media, including DVDs and VCR tapes having different sizes can be displayed using the same device.

The device described herein has several advantages. Its cases can be easily rotated to the closed position in which the media are locked and cannot be stolen. The cases can be rotated very easily from one position to another without requiring special tools. No special doors or locks are required for the

device. The device can be easily adapted to hold several types of different media without requiring any major tooling, since only the shelves need to be changed. The device can be manufactured using standard methods and techniques. Moreover, the device can be easily modified to accommodate not only various types of media, but it can be made larger or smaller, without any major tooling efforts. For example, a display device can be made with a single case 24 and a single shelf. This device is suitable for a countertop.

The device can be constructed to form various shapes that are esthetically pleasing and has several highly visible surfaces, including sides 16 and 18, as well as back wall 32 on cases 24, that can be used for advertising or to provide other information to the potential buyers and to the public at large.

While the invention has been described with reference to several particular embodiments, it is to be understood that these embodiments are merely illustrative of the principles of the invention. Accordingly, the embodiments described in particular should be considered as exemplary, not limiting, with respect to the following claims.